

REMARKS

Pending claims 1-8 and 17-23 stand rejected.

Claims 1, 5, 7 and 8 are amended and new claims 24-29 are added.

Claims 17-23 are canceled without prejudice.

After the entry of the amendments submitted herein, claims 1-8, and 24-29 remain pending.

Claim Objections

The Examiner objects to Claim 23 as being of improper dependent form. Claim 23 is canceled. Withdrawal of the objection is kindly requested.

The Examiner objects to Claims 18-21 because they depend from a non-elected claim. Claims 18-21 are canceled. Withdrawal of the objection is kindly requested.

Rejection of Claims 1 - 6 and 17 - 21 under 35 U.S.C. § 103

The Examiner rejects Claims 1-6 and 17-21 under 35 U.S.C. § 103(a) as being unpatentable over Lauth et al. (US 5,559,065) in view of Chang (US 2001/0041277). In view of the amendments submitted herein, this rejection is traversed.

Claim 1 as amended now recites:

A catalytic system comprising:
a ceramic support comprising alumina, said ceramic support including a surface that comprises **a monolayer of an adhesive agent provided on said surface**, said adhesive agent comprising at least one of titanium, zirconium, scandium, hafnium, lanthanum, and yttrium; and
a plurality of metal catalyst particles attached to the surface of said ceramic support, wherein said monolayer of the adhesive agent provides increased adhesion between the ceramic support and the plurality of metal catalyst particles.

(emphasis in bold added). Thus, Claim 1 requires a monolayer of the adhesive agent on the surface of the ceramic support AND a plurality of metal catalyst particles attached to the surface, wherein the monolayer of the adhesive agent provides increased adhesion between the ceramic support and the plurality of metal catalyst particles.

In contrast, the Lauth reference discloses a layer of metal catalyst alloy provided on a support with no mention of an adhesive agent. Thus, Lauth fails to disclose (1) a ceramic support including a surface that comprises a monolayer of an adhesive agent and (2) a plurality of metal

catalyst particles attached to the surface of said ceramic support, wherein said monolayer of the adhesive agent provides increased adhesion between the ceramic support and the plurality of metal catalyst particles.

The Examiner asserts that because the metal alloy catalyst of Lauth is selected from the group of alloys including Pd-Zr and Pt-Zr, some Zr (one of the possible adhesive agents claimed in claim 1) would be present on the surface of the support structure. However, Claim 1 as amended requires that the adhesive agent be provided as “a monolayer” on a surface of the ceramic support. Lauth fails to teach that the Zr-containing adhesive agent be provided as a monolayer.

In rejecting claim 4, the Examiner asserts that the sputtering process taught by the Chang reference in which the amount of material deposited can be controlled teaches one of ordinary skill in the art to modify the disclosure of Lauth to deposit a monolayer of the Pd-Zr or Pt-Zr metal alloy catalyst. The Examiner also relies on Chang for the proposition that the metal catalyst alloy applied to the support structure in a layer in Lauth may be modified to produce “a plurality of metal catalyst particles” by using the sputtering process taught in Chang. The Examiner’s application of the Chang reference, however, does not correct the deficiencies of Lauth with respect to Claim 1 as amended.

Assuming *arguendo* that Examiner’s proposal can produce a monolayer of the Pd-Zr or Pt-Zr metal catalyst alloys in particulate form. That only results in a monolayer of the metal catalyst particles. That system still would not have “a monolayer of an adhesive agent” AND “a plurality of metal catalyst particles, wherein the monolayer of the adhesive agent provides increased adhesion between the ceramic support and the plurality of metal catalyst particles” as required by Claim 1 as amended.

Accordingly, the Lauth and the Chang references, whether taken singly or in combination, do not disclose, teach or suggest the invention claimed in the amended claim 1 and can not obviate Claim 1 under 35 U.S.C. § 103(a). Withdrawal of the rejection of Claim 1 and its allowance are kindly requested.

Claims 2-6 depend from Claim 1 and incorporate all limitations of Claim 1. Thus, the claims 2-6 are also allowable over the Lauth and the Chang references. Withdrawal of the rejection of the claims 2-6 and their allowance are kindly requested.

Claims 17-21 are canceled. Therefore, their rejections are moot.

Rejection of Claims 7, 8 and 22 under 35 U.S.C. § 103

The Examiner rejects Claims 7, 8 and 22 under 35 U.S.C. § 103(a) as being unpatentable over the Lauth reference as applied to claims 1 and 17, and further in view of Paulus et al. (US 5,512,324). In view of the amendments presented herein, this rejection is traversed.

Claim 7 as amended depends from claim 1 and requires that “the ceramic support comprising a second surface on which a monolayer of said adhesive agent is provided; and further comprising a monolith attached to said second surface of the ceramic support.”

In rejecting claim 7, the Examiner states that although the Lauth reference fails to teach the ceramic support being attached to a monolith, the Paulus reference teaches a method of attaching a catalyst material to a metal monolith. However, the additional teachings of the Paulus reference fails to cure the deficiencies of the Lauth reference with respect to the parent claim 1. Therefore, claim 7 is allowable over the combined teachings of the Lauth and the Paulus reference. Withdrawal of the rejection of claim 7 and its allowance are kindly requested.

Claim 8 as amended depends from claim 7 and requires that the monolith has a surface comprising metal on which the second surface of the ceramic support is attached. Because the parent claim 7 is allowable over the Lauth and the Paulus references, claim 8 is also allowable over the Lauth and the Paulus references. Withdrawal of the rejection of claim 8 and its allowance are kindly requested.

Claim 22 is canceled and, thus, its rejection is moot.

Additional Amendments

Claim 5 depending from Claim 1 has been amended to further define additional aspects of the claimed invention. The support for the amendment can be found, for example, in paragraph [0019] of the Specification.

New claims

New dependent claims 24 - 29 have been added to further define aspects of the claimed invention. The subject matters of the new claims are fully supported by the originally filed

Specification and no new matters have been added. The support for the new claims can be found, for example, in paragraphs [0019] and [0020] of the Specification.

In view of the foregoing, Applicants believe that the present application is in condition for allowance. Should there be any questions or matters whose resolution may be advanced by a telephone call, the examiner is cordially invited to contact applicant's undersigned attorney at his number listed below.

The Commissioner is hereby authorized to charge payment of any required fees, which are associated with this communication, or credit any overpayment to Deposit Account No. **04-1679**.

Respectfully submitted,

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